Supreme Court, U. S.
FILED
DEC 18 1975
MICHAEL RODAK, JR., CLERK

In the Supreme Court of the United States

OCTOBER TERM, 1975

No. 75-8581

SHANKLIN CORPORATION,
PETITIONER,

v.

SPRINGFIELD PHOTO MOUNT COMPANY,
RESPONDENT.

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FIRST CIRCUIT

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Blanchard Press, Inc., Boston, Mass. — Law Printers

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PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FIRST CIRCUIT

Petitioner prays that a writ of certiorari issue to review the judgment of the United States Court of Appeals for the First Circuit, entered in the above-entitled case on August 20, 1975, petition for rehearing denied September 22, 1975.

Citation to Opinions Below

The opinion of the United States District Court for the District of Massachusetts is reported at 387 F. Supp. 345 and is printed in Appendix C *infra* p. 24a. The opinion

of the United States Court of Appeals for the First Circuit is reported at 521 F.2d 609, and is printed in Appendix B *infra* p. 3a; the memorandum and order denying rehearing is printed in Appendix A *infra* p. 1a and has not been reported.

Jurisdiction

The judgment of the Court of Appeals was entered August 20, 1975. A memorandum and order denying rehearing was entered September 22, 1975. The jurisdiction of this Court is invoked under 28 U.S.C. § 1254(1).

Questions Presented

I. With respect to this Court's decisions on the question of obviousness of invention under 35 U.S.C. § 103, can a Court of Appeals:

(1) Sanction the action of the District Court in deciding the question of obviousness where the District Court made none of the factual inquiries which this Court has held to be requirements for deciding obviousness as a question of law, *Graham et al* v. *John Deere Co. et al*, 383 U.S. 1;

(2) Rule that obviousness is a question of fact in direct conflict with the rulings of this Court and the rule in conformity thereto which prevails in a majority of the circuits that obviousness is a question of law, *A & P Tea* v. *Supermarket*, 340 U.S. 147 and *Graham*, *supra*;

(3) Fashion a different basis for the ruling of obviousness of the District Court and, still without the requisite factual inquiries, hold that since in this circuit obviousness is a question of fact the implied ruling cannot be disturbed because not clearly erroneous under Fed. R. Civ. Proc. 52(a)?

II. Whether this Court on questions of obviousness under § 103 will permit optional compliance with the factual inquiry requirements and ruling of law based thereon of *Graham* v. *John Deere* in view of the express *Graham* exception to estoppel to relitigate patent invalidity found in *Blonder-Tongue Laboratories Inc.* v. *University of Illinois Foundation et al*, 402 U.S. 313, 333.

III. Whether this Court will refine the test of obviousness under § 103 as to the latitude courts may use in considering non-prior art to invalidate a patent where such non-prior art is specifically excluded by statute as a basis for loss of right to a patent, 35 U.S.C. §§ 102(b), 102(g) and 104.

Constitutional Provision and Statutes Involved

The Congress shall have power . . . To promote the Progress of . . . useful Arts, by securing for limited Times to . . . Inventors the exclusive Rights to their . . . Discoveries. U. S. Constitution, Article I, § 8, Cl. 8.

The statutory provisions involved are the patent laws 35 U.S.C. §§ 102, 103 and 104, the pertinent portions of which are printed as Appendix D *infra* p. 33a-34a.

Statement of the Case

This suit for patent infringement was brought in the U. S. District Court for the District of Massachusetts pursuant to 35 U.S.C. § 281 with jurisdiction conferred by 28 U.S.C. § 1338(a) and § 1400(b). The infringing device is the "Weldotron Model 5872 Automatic L Bar Package Forming System" manufactured by Weldotron Corporation of Piscataway, New Jersey. Infringement has been conceded.

The patent in suit No. 3,583,888, was issued June 8,

1971, to Frank Garrett Shanklin as assignee of plaintiff-petitioner and the machine disclosed therein became the basis of the business of petitioner corporation in a new category of packaging machine known as an in-line L-sealer.

"L-sealers" are known from the prior art as relatively low cost, intermittent motion, moderate speed, package overwrapping machines in which a roll of longitudinally folded film is unwound and moves in a straight line from a supply roll across a package loading station and proceeds to a sealing station. Packages to be overwrapped by the film are inserted by opening the free edges of the folded film and inserting the package at right angles to the straight line direction of film travel to a position between the layers of the folded film. The package is advanced by pressing against a previously made transverse seal in the film which action draws film from the supply roll. The sealed package is completed at the sealing station by the L-sealer which has transverse and longitudinal (i.e., L-shaped) electrically heated wires which when pressed against superposed layers of film both seals and severs the adjacent film layers. Since the film is also heat shrinkable, it is imperative that the film be free of tension at the time of sealing in order to form a strong seal on each side of the line of severance. Tension in the film at the time of sealing will result in a weak seal and subsequent defective package as, in passing through a hot air "shrink" tunnel, the film is shrunk into conformity with the overwrapped package.

The Shanklin invention provided for the first time an in-line L-sealer in which the package moves in a straight line and the film is supplied from the rear to an inverting head, a new element in the form of a U-shaped rod, positioned at 45° to both the path of in-line package travel and to the direction of arrival of the folded film. The

U-shaped rod inverting head changes the direction of the film travel by 90° without introducing tension during film feed and so as to maintain tracking over the path with intermittent feed and during the tension-free interval while the seal is made. During film advance over the inverting head the film must remain relatively free of tension because the package is drawing the film by pressing against the previously made transverse seal which, for usual repetitive operation, is still warm from the previous sealing and severance and thus relatively weak.

The Shanklin invention established the in-line L-sealer as a new category of L-sealer packaging machines which became an immediate commercial success and, as soon as this became apparent, was copied and sold by Weldotron to the extent that in-line L-sealers account for 50% of their substantial volume of business in automatic L-sealers.

Prior to the Shanklin invention those skilled in the art, including Shanklin, were aware of "form-fill-seal" machines in which a supply of single layer flat (i.e., not folded) film was unwound and formed under continuous tension to conform to the shape of a sheet metal mandrel which defined the cross-section shape of the pouch or package. After a transverse seal and a longitudinal seal were made on the film around the mandrel this film provided a tube into which loose product could be loaded and the package completed by making the top transverse seal (a bag of potato chips is a typical example).

Shanklin, with knowledge of the form-fill-seal machines, tried to build an in-line L-sealer using flat film and a forming mandrel and failed. The film would track while under continuous tension as in form-fill-seal machines but when tension was released, as was essential to forming a satisfactory seal and severing the film, tracking (i.e., successive feeding of the film over the 90° change of direction) failed. Approximately a year elapsed before Shanklin made the in-

vention by discarding the prior art forming mandrel and flat film and fashioning a new inverting head in the form of a U-shaped round rod using a folded film supply which delivered a web of folded film tension-free to the U-shaped rod where it was inverted and turned 90° into the straight line path of product travel.

In the Patent Office the examiner rejected the Shanklin claims as an obvious modification of prior art (the Deans patent) showing the continuous motion, constant tension, form-fill-seal type of machine but allowed the claims upon Shanklin's affidavit showing such devices to be inoperative in the context of an in-line L-sealer.

The trial court in holding the Shanklin patent invalid made no reference whatsoever to the language of the claims but made the following statement:

> "A review of the exhibits herein satisfies me that the instant patent is invalid, on the grounds of obviousness, within the meaning of 35 U.S.C.A. § 103, and also on the grounds that it has been anticipated by the prior art, within the meaning of 35 U.S.C.A. § 102."

The District Court then held claim 1 to be obvious under § 103 on the disclosures of five documents, three of which were not prior art, the remaining two being the same art as that considered by the Shanklin patent examiner. The court also held claims 1-7 to be anticipated under § 102 by different prior art, the Runo patent and modified Runo machine.

The Court of Appeals found:

(a) the District Court to be in error in ruling that all of the claims were invalid as anticipated under § 102;

(b) that the ruling of invalidity of claim 1 for obviousness under § 103 must by necessary implication include the Runo prior art relied upon for anticipation under § 102 even though the District Court did not include this prior art as a basis for its § 103 ruling;

(c) that the Runo prior art did not make the Shanklin invention obvious;

(d) that the District Court in reliance on the non-prior art documents could *reasonably* find that others had been able to fashion tracking devices similar to Shanklin's and that they could not say that the District Court was clearly erroneous (having previously cited Fed. R. Civ. Proc. 52(a) as to overturning findings of fact only if clearly erroneous);

(e) that although the District Court did not make specific findings that claims 2 through 7 were obvious, there was implicit in the court's rulings a finding of obviousness, again relying on the implication that the Runo patent was considered by the District Court in finding claim 1 obvious;

(f) that *given* the findings of obviousness for claim 1, the court could reach no other conclusion with respect to claims 2 through 7; and

(g) that claim 3 "gives us reason to pause" since the prior art did not provide or suggest the ready width adjustments which are possible only with the novel U-shaped rod inverting head specified by this claim but that *given* that claim 1 is found to be obvious, it is "not a significant feature" and "would be a simple expedient".

A petition for rehearing noted that the Court of Appeals was in error in assuming that the Shanklin patent examiner was ignorant of the Runo patent thus crediting Runo as more effective in overcoming the presumption of validity when in reality the same examiner considered both applica-

tions in close time sequence; that Runo did not show use of folded film as defined in claim 1; that no compliance with the inquiry required by *Graham* v. *John Deere, supra,* as a basis for deciding obviousness under § 103 had been made; that by imputing implicit "findings" into the District Court's opinion and then refusing review because such findings were not "clearly erroneous", the court was avoiding any effective review of the question of law involved in deciding patent validity, *A & P Tea* v. *Supermarket, supra;* that the non-prior art documents relied upon to supplement the admittedly deficient prior art were either too late to be effective or did not, in fact, suggest the *claimed* Shanklin invention and that thus there was no compliance either in the District Court or Court of Appeals with the clear mandate of *Graham* for a ruling of law based on ascertaining the differences between the prior art and the claims in issue. Rehearing was denied.

Reasons for Granting the Writ

I. Obviousness as a Question of Law.

This Court has clearly stated that the ultimate question of patentability is one of law requiring reference to a standard written into the Constitution. After enactment in 1952 of United States Code Title 35 this Court in *Graham* v. *John Deere* reaffirmed the constitutional standard when "invention" was in issue and specified the factual inquiry that was required under § 103. As stated in *Graham* after review of the legislative intent p. 17-19:

> ". . . the section 'paraphrases language which has often been used in decisions of the courts, and the section is added to the statute for uniformity and definiteness.'. . .

> "Approached in this light, the § 103 additional condition, when followed realistically, will permit a more practical test of patentability. The emphasis on nonobviousness is one of inquiry, not quality, and, as such, comports with the constitutional strictures.
>
> "While the ultimate question of patent validity is one of law, *A. & P. Tea Co.* v. *Supermarket Corp., supra,* at 155, the § 103 condition, which is but one of three conditions, each of which must be satisfied, lends itself to several basic factual inquiries. Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined . . . .
>
> ". . . We believe that strict observance of the requirements laid down here will result in that uniformity and definiteness which Congress called for in the 1952 Act . . . ."

In *Anderson's Black Rock Inc.* v. *Pavement Salvage Co., Inc.,* 396 U.S. 57, 62 the Court ". . . admonished that 'strict observance' of those requirements is necessary."

Continuing at p. 19 in *Graham,* the Court commented on the standard of invention under § 103:

> "Although we conclude here that the inquiry which the Patent Office and the courts must make as to patentability must be beamed with greater intensity on the requirements of § 103, it bears repeating that we find no change in the general strictness with which the overall test is to be applied. . . . The standard has remained invariable in this Court. Technology, however, has advanced . . . It is but an evenhanded ap-

> plication to require that those persons granted the benefit of a patent monopoly be charged with an awareness of these changed conditions. The same is true of the less technical, but still useful arts . . . ."

Petitioner here seeks no modification of the standard of invention based on the tests embodied in § 103 nor to escape being charged with awareness of the advance of technology in this less technical, but still useful art. On the contrary, it is but an evenhanded application of the requirements of *Graham* and the judicial determination of the ultimate question of law based on the results of such factual inquiry that are sought. The conclusory statement of the District Court that "A review of the exhibits herein satisfies me that the instant patent is invalid, within the meaning of 35 U.S.C.A. § 103, . . ." stands as both the substance and form of judicial compliance with the "strict observance" of the necessary requirements of *Graham* admonished in *Anderson's Black Rock.*

This mere finding of obviousness by the District Court falls far short of what a patentee would expect to receive in a judicial determination of validity based on obviousness under the decisions of this Court. The Court of Appeals found error in or deficiency in the basis for all rulings of the District Court and fashioned a substitute basis for the *District Court's* ruling of obviousness by adding the Runo patent and machine as necessarily implicit therein from the lower court's § 102 ruling of anticipation which itself was held to be erroneous. Even the Runo prior art did not make the Shanklin invention obvious and the Court of Appeals required further "inquiry into whether one having ordinary skill in the art could be expected to evolve the Shanklin machine from the Runo patent and other prior art references." After reviewing non-prior art documents the Court of

Appeals held "the court could reasonably find that others had been able to fashion tracking devices similar to Shanklin's" and that "On this record we cannot say that the district court was clearly erroneous in concluding that claim one of the patent was obvious under section 103."

In so ruling that the invalidity of claim one for obviousness was to be upheld, the Court of Appeals made no reference to the language of the claim. The factual errors committed in its finding of teachings in the prior art and non-prior art without reference to the claim are multitudinous and grossly prejudicial to an evaluation of obviousness on the merits. But petitioner was not even afforded such an evaluation. The review of the Court of Appeals was limited to an application of the "clearly erroneous" test of Fed. R. Civ. Proc. 52(a) as to questions of fact while paying lip service to *Graham*. But as we have seen there were no findings of fact below. The circuit court expressly fashioned an implicit different basis for the finding of obviousness without a determination of the differences between the prior art and the claims in issue and then refused to review the ruling of the District Court because they could not say that the District Court was clearly erroneous.

This Court has said that the standard of invention controls in every case where the validity of a patent is in issue and "It is that question which the Court must decide. No 'finding of fact' can be a substitute for it in any case. The question of invention goes back to the constitutional standard in every case." *A & P Tea* v. *Supermarket* (concurring opinion). The *Graham* court cited this portion of the opinion as authority for patent validity being a question of law.

The circuits are divided in their treatment of the question. The Court of Appeals for the Eighth Circuit in *Flour City Architectural Metals* v. *Alpana Aluminum Pro-*

ducts, Inc., 454 F.2d 98, 106, C.A. 8 (1972) after an extensive analysis including the companion cases decided with *Graham* said: "Following these examples set by the Supreme Court, we are constrained to review the ultimate question of obviousness vel non as a matter of law, not fact." They deemed only the factual inquiries of *Graham* subject to the constraint of Rule 52(a) upon review and in footnote 8 indicated the division of the circuits on how this question has been handled. The Second, Third, Fifth, Seventh, Ninth and District of Columbia Circuits as well as the Court of Customs and Patent Appeals are in accord with the Eighth Circuit. The First, Fourth, Sixth and Tenth Circuits have decided cases in which obviousness is considered a question of fact and held to be not subject to review unless clearly erroneous. Clearly, this important question should be resolved to obtain that uniform adherence to the constitutional standard which this Court requires.

The conflict among the circuits harbors a threat of further deterioration in compliance with this Court's mandate. As is clear from the First Circuit decision in the present case, no findings at all are required at the district court level save the ultimate ruling of obviousness to apply the First Circuit strictures on review of findings unless clearly erroneous. With no facts relative to obviousness found by the trier of the facts, the appeal then becomes a complete presentation of all issues bearing on obviousness without an opportunity to analyze and argue the findings or rulings based thereon (cf. petitioner-appellant's brief on appeal). When errors of fact and law then emerge in the decision on appeal, the opportunity for review by rehearing or certiorari is minimal rather than as a matter of right.

The result of such failure in the orderly progression of the judicial process has led many patent practitioners to

insist upon the patentee's right to a jury trial after the patent bar for long years has eschewed this option primarily because of the technical nature of the subject matter (See *The Changes in Patent Litigation and the New Federal Rules of Evidence*, Wetzel and Ward, Journal of the Patent Office Society, August, 1975, Vol. 57, No. 8, pp. 519-30). Where the jury has decided the question of obviousness, the constitutional standard is even more in jeopardy. See Douglas J., dissenting, (recommending certiorari) in *Shultz* v. *Moore*, C.A. 10th Cir., *cert. denied*, 419 U.S. 930, reported below: 491 F.2d 294. And in the First Circuit a jury finding of non-obviousness has been accepted as correct by the District Court, *Spound et al* v. *Mohasco Industries, Inc. et al*, F. Supp. (186 USPQ 183) D.C. Mass. (1975), the District Court relying on the First Circuit cases holding the question of obviousness to be one of fact, citing *Koppers Company* v. *Foster Grant*, 396 F.2d 370, 372; *Nashua Corporation* v. *RCA Corporation*, 431 F.2d 220, 222; *General Instrument Corporation* v. *Hughes Aircraft Co.*, 399 F.2d 373, 384.

In these diverse decisions the uniformity that §103 was intended to achieve is illusory. How can rulings of obviousness by the trier of the facts not predicated on the statutory tests enunciated in *Graham* be exempt from judicial review (unless clearly erroneous) and still hue to the constitutional and statutory standard? As Douglas J. observed, *Shultz* v. *Moore, supra*, "Findings that identify the unique features of the patented device and explain why they advance the art are essential, to permit appellate review to insure that constitutional limitations have not been exceeded". Of course, discernment and initiative by the appellate court can at times alleviate the failure of the District Court to provide adequate findings, cf Stevens, Circuit Judge in *Continental Oil Company* v. *Witco Chemical Corporation*, 484 F.2d 777, 782, (C.A. 7, 1973). But obtaining from the

appellate court the first full judicial weighing of the facts involved in determining obviousness is at best a random occurrence and affords essentially no review of errors that may there occur. If patent litigation is to serve the avowed purpose of sustaining the integrity of the patent statutes under the Constitution, this Court's decisions must be uniformly applied in turn by the lower courts of each circuit to provide factual determination as the basis for judicial decision with full appellate review of questions of law and appropriate consideration of findings of fact.

II. Relitigation of Patent Validity

Petitioner can, of course, avail itself of its failure to receive the benefit of applying the standards of *Graham* in the first validity determination as one of the explicit exceptions to estoppel noted (p. 333) in *Blonder Tongue Laboratories, Inc.* v. *University of Illinois Foundation et al., supra.* But if this flaw in laying patent validity to rest upon the first adjudication of invalidity is allowed to propagate circuit by circuit or even remain in those circuits where it now exists, the universal benefit of estoppel under *Blonder-Tongue* is lost. Thus, if the lower courts are free to disregard the clear directives of *Graham,* the burden upon the federal courts and the far-reaching economic consequences caused by relitigation of patent validity, carefully analyzed by this Court in *Blonder-Tongue* and found sufficient to strike the rule against estoppel (*Triplett* v. *Lowell,* 297 U.S. 638), are reinstated. The extended problems under *Triplett* (*Blonder Tongue* pp. 342 *et seq.*) regarding the use of the power to relitigate to exact license agreements and other settlements, considered in the context of other decisions of this Court, provide another source of mischief which could readily be avoided by a straightforward adherence to the relatively simple standards imposed by *Graham.*

As regards the patentee who, as in this case, has built his business on a single patent that is admittedly novel, the numerous instances of recognition by this Court of Congressional intent to implement that which is expressly sanctioned by the Constitution and to ". . . fully accept Congressional judgment to reward inventors through the patent system" (*Blonder-Tongue,* p. 331) raise expectations that his commitment in effort, time and money will entitle him to a fair and reasoned consideration of the merits of his patent under applicable law and decisions of this Court. The failure of the trial court to make even a gesture in the direction of compliance with *Graham* and the compounding of errors of fact and law on appeal to avoid the imposition of remand on an admittedly overburdened district court give the constitutional invitation to promote the useful arts a hollow ring. If this Court accepts the constitutional and statutory scheme for rewarding inventors it should exercise its authority under the Constitution not only to interpret the standard by which invention is judged, but also its supervisory power to assure that its mandates are followed by the lower federal courts. A patentee should not have to search for a forum where that result obtains.

III. Obviousness Based on Statutorily Disqualified Non-Prior Art.

This case presents the anomaly of judicial determination that the patent in suit is neither anticipated under § 102 nor obvious from the *prior art* under § 103, but, nevertheless, is invalid because of three documents which are not prior art and, in fact, are expressly disqualified as a basis for loss of right to a patent under the statute §§ 102, 104. Thus the successors to the Deans patent (the principle reference cited by the patent examiner in the

Shanklin patent) produced at their depositions two concept drawings of using folded film in continuous motion, constant tension machines which concepts were abandoned, suppressed and concealed until the trial of this case. These disclosures

> (1) fail to show the tension-free tracking property which the Court of Appeals found to be the deficiency which made the invention non-obvious over the Runo patent ("But the Runo counterweight does not eliminate tension over the head and thus does not disclose the essential property of the tracking device which made it useful"; Footnote 10, opinion of the Court of Appeals, *infra* p. 16a); and
>
> (2) since they were abandoned, suppressed and concealed until the trial of this case, are expressly excluded by statute 35 U.S.C. § 102(g), (*infra* p. 33a) from being the basis for loss of right to a patent.

The third document was a German patent application (OLS 1810230) the date of which was too late to be effective against the Shanklin patent under 35 U.S.C. § 102 (a) and (b). Even if a corresponding U. S. patent application had been filed with the benefit of the German filing date secured under 35 U.S.C. § 119, the Shanklin patent would have been entitled to priority of invention under 35 U.S.C. § 102(g) and § 104.

Thus, in each instance of the non-prior art relied upon by the courts below, the documents have become more effective than they would have been had their originators complied with our patent statutes and given the public the benefit of their disclosures under the constitutional scheme for promoting the useful arts.

This case involves a relatively simple invention in the category of "useful arts". The Founding Fathers could

have readily comprehended it and in all probability found it to warrant the grant of a patent under constitutional standards and the state of technology at that time. Thus as a combination of elements including a new element (the U-shaped round rod as an inverting head) which produced a new machine (the in-line L-sealer) operating in a manner not previously known, the invention does not fall within Jefferson's tests for non-patentability (*Graham*, p. 10 n. 3). On the contrary, the Court of Appeals found (*infra* pp.34-5) that the *prior art* did not make the Shanklin invention obvious, but rather noted that "In the Shanklin machine relatively tension-free delivery of folded film to the head is necessary for tracking, article enclosure and advancement, and a tensionless seal". Whether the patent in suit could be held valid under the present state of advance of technology and the non-obvious standard now required under §103 "demands reasoned elaboration and, therefore, treatment as a question of law." Douglas J., *supra*.

This Court in granting certiorari, in addition to rectifying the errors below, could take a further step in "the judicial evolution suggested by Jefferson and left to the courts by Congress." (*Graham*, p. 11) While pushing back the frontiers of science provides the spectacular and basic strength of our innovative society, the warp and woof of the supporting fabric and by far the most substantial segment of our industrial system lies below that level in the broad category corresponding to the term "useful arts". To the many innovators in that category every decision of this Court speaking to the level of invention required to sustain a patent is factored into future decisions. A decision on certiorari in this case would go beyond the previous decisions on such subject matter by further defining and making definite the standard of invention in this important area.

Petitioner is aware that the decisions of this Court cited herein in each instance involve certiorari to a Court of Appeals which had upheld the validity of a patent and this Court has reversed. It is taken as not requiring citation of authority that the principles which have been enunciated by these cases apply as well here where the patent in suit has been held invalid. The constitutional standard of invention controls in every case and hence does not admit of application solely to invalidate patents which have survived to reach this Court intact.

Conclusion

For the foregoing reasons, the petition for a writ of certiorari should be granted.

Respectfully submitted,

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APPENDIX A

United States Court of Appeals
For the First Circuit

No. 75-1061

SHANKLIN CORPORATION,
PLAINTIFF, APPELLANT,
v.
SPRINGFIELD PHOTO MOUNT COMPANY,
DEFENDANT, APPELLEE.

Before COFFIN, *Chief Judge*,
MCENTEE and CAMPBELL, *Circuit Judges*.

MEMORANDUM AND ORDER ON
PETITION FOR REHEARING
Entered September 22, 1975

Shanklin Corporation points out in its Petition for Rehearing that the Shanklin patent examiner was also the Runo patent examiner. While nothing in the record suggests that he focused upon the possible bearing of the Runo invention on the Shanklin applications we misspoke when we characterized him as "ignorant of the Runo patent." But the fact remains that Runo was not referred to either in Shanklin's application nor was it cited by the examiner; it is pure conjecture to assume that it was considered rather than simply overlooked. By contrast, the district court supportably found Runo to be material to Shanklin. We find no reason to alter our view that the Runo patent afforded "highly pertinent evidence which may overcome the presumption of validity of the patent."

Shanklin's three remaining points are largely or entirely reargument. Very briefly, we deal with them as follows:

POINT 2

While, as this court stated, Runo did not operate in a manner so as to disclose the property of tracking tension-free for the Shanklin in-line L-sealer, it did show folded film over a u-shaped inverting device and was a particularly relevant reference in that respect. The leap from Runo and other prior art to the Shanklin claimed invention was a question of obviousness. The district court held that the Shanklin claim one, the critical claim, was obvious, and on the basis of the district court's opinion and the entire record this court affirmed.

POINT 3

The failure of the district court to cite specifically Runo in its finding that claim one was obvious is understandable since the court held that Runo anticipated Shanklin claim one under an erroneous view of 35 U.S.C. § 102. The district court's consideration of Runo in its section 103 finding of obviousness is implicit from its anticipation finding and also from its acceptance as credible defendant's expert Davis, who thought that Runo, as well as other devices, made Shanklin's claims obvious.

POINT 4

The non-prior art suggestions and conceptions cited by the district court, though not necessarily involving each specific of the Shanklin combination, were relevant to the claimed nonobviousness of using folded film over a u-shaped inverting head and were admissible as evidence of ordinary skill in the art—not as references or disclosures.

The Petition for Rehearing is denied.

By the Court,

(s) DANA H. GALLUP
Clerk

Enter: (s) COFFIN, CH.J.

[Messrs. Pfund and Bradley.]

APPENDIX B

United States Court of Appeals
For the First Circuit

No. 75-1061

SHANKLIN CORPORATION,

PLAINTIFF, APPELLANT,

v.

SPRINGFIELD PHOTO MOUNT COMPANY,

DEFENDANT, APPELLEE.

APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS
(ANDREW A. CAFFREY, *District Judge*)
[387 F. Supp. 345]

Before COFFIN, *Chief Judge*,
McENTEE and CAMPBELL, *Circuit Judges*.

Charles E. Pfund, with whom *Dike, Bronstein, Roberts, Cushman & Pfund* and *Robert E. Meyer* were on brief, for appellant.

Charles W. Bradley, with whom *Robert J. Horn, Jr., Kenway & Jenney, Charles W. Bradley*, and *Cooper, Dunham, Clark, Griffin & Moran* were on brief, for appellee.

August 20, 1975

CAMPBELL, *Circuit Judge*. Plaintiff Shanklin Corporation sued Springfield Photo Mount Company for infringement of its patent No. 3,583,888. The claimed infringing device, "Weldotron Model 5872 Automatic L Bar Package Forming System," is manufactured by Weldotron Corporation, which is the real party in interest defending in this action. The district court held that the patent was invalid and un-

enforceable, 387 F. Supp. 345 (D. Mass. 1975), and Shanklin appeals.

Shanklin's patented apparatus is an "in-line" packaging machine, a term used when the articles to be wrapped follow a straight-line path to and through the machine. The wrapping material, a thermo plastic film, must be heat sealable so that its edges can be sealed around the articles being wrapped, and it may be heat-shrinkable so that the packages formed by the machine can be passed onto a conveyor and through a hot air tunnel to be shrunk into a tight wrap. A supply roll of the film is located out of the straight-line path of the articles, and the film is drawn from the roll into the articles' path, where it makes a 90° turn to follow the remainder of the path. The film must be in a folded condition (longitudinally along its center) while on the roll or before it turns the corner. By being tracked over a u-shaped rod called an "inverting head,"[1] the folded film is able to turn the corner into the article path and in the process effectively turn inside out so that its sides are separated and capable of receiving an article passing along the in-line article path through the inverting head. The article to be wrapped, passing between the film's open sides, presses against a previously made transverse seal across the film to advance the film into a sealing area. There an L-shaped bar ("L-sealer") seals the film longitudinally along the side of the article and transversely behind the article, thus forming a complete closure around the article. The film is severed at this transverse seal in such a way as to separate the completed package from the roll of film and also to provide the forward edge for the next article to be packaged. The articles can be passed either manually or automatically by a mechanical pusher.

[1] The film passes over the outside of the u-rod "inverting head," which is angled at 45°, and back through the inside, so that the fold stays at the curved portion of the u-rod.

The application for the Shanklin patent was filed on April 10, 1969. The Patent Officer examiner initially rejected all claims, principally on the basis of Deans, et al. patent No. 3,420,035, which shows an in-line continuous-motion packaging machine. The examiner stated that it would be obvious to modify the Deans machine in accordance with prior art L-sealers (Hosso patent over sealing mechanism and Kral patent over feeding mechanism, which conveys articles to be packaged at right angle to the straight-line path of the film) to achieve the Shanklin claims. In particular, the examiner stated,

> "The patent to Deans et al, discloses a packaging method and apparatus, the apparatus comprising film supply means 19 for feeding film transversely to the path of an article infeed conveyor and to an inverting head 22 having edges at approximately 45 degrees to each path (Fig. 1), which head folds the film about the articles so that longitudinal and transverse seams may be made to form packages, the transverse sealing means being used to draw film through the inverting head. While roll 20 is flat sheet, the apparatus of the patent to Dean et al. does fold the sheet to a V-shape as at 21, Fig. 1, prior to the inverting operation. The patent to Hosso shows that it is conventional, in apparatus for packaging articles in U-folded webs, to provide a generally U-shaped film spreader member 20, 24 having generally parallel upper and lower surfaces. In view of this teaching it would be an obvious modification, if such were desired, to bend member 22 of the patent to Deans et al. to a U-shape."

Shanklin responded that the Deans patent was deficient in its disclosure of the folding head—that it showed the desired result of folding the web without showing how to accomplish the result. Shanklin pointed out that in the Deans machine the web could not be folded into a v-shape

prior to an inverting operation as stated by the examiner. In any event, according to Shanklin, it was unnecessary for Deans to describe the folding mechanism in detail because folding heads are old in the art and have been frequently used to wrap flat film around a mandrel, or forming head, to form a tube while articles to be packaged are passed through the mandrel into pouches as they are formed. Shanklin stated that, by contrast, the present invention involved pe-folded film turned inside out around an inverting head, thus permitting the film to pass through the sealing machine in a single plane simply, efficiently, and without elaborate film guides—a result which is particularly useful in L-sealers. Shanklin stated,

> "Because of the structural requirements of the machine frame, L-sealers have used center folded film since they were first invented. Unfortunately, the center folded film has made it necessary to insert the product into the folds of film at right angles to the direction of travel of the film. The inverting head turns the prefolded web of film inside out thus permitting the product to be inserted in the same direction as the travel of the film through the sealing head while still using center folded film and thereby obtaining the advantages of the horizontal film webs. The product, in effect, is placed on the 'outside' of the webs of film which becomes the 'inside' upon passing over the inverting head. Prior to the invention of the inverting head, this was not possible."

The Patent Office examiner, in a "final" action, rejected the argument that the Deans folding head was insufficiently disclosed and again rejected all claims for the reasons stated originally. The inventor, F. Garrett Shanklin, subsequently had an interview with the examiner, and this was followed by an amendment submitting revised claims and containing remarks of what had transpired at the interview. The

amendment states that at the interview Mr. Shanklin, in addition to showing three short motion pictures to demonstrate his machinc, explained that it was a great improvement over prior art L-sealers, in which articles followed a right-angle path, because the Shanklin machine provided increased speed of operation and ease of adjustability for packaging articles of varying size. As for the Deans patent, Mr. Shanklin explained that when he first started to develop a straight-line L-sealer, he had tried a film feed and folding means similar to Dean's, using a roll of flat film mounted vertically and centered on a horizontally oriented and u-shaped folding head:

> "This proved to be unsuitable for an L-type sealer where the film is advanced by the motion of a package pressing against a previously made seal in view of the fact that when the final transverse seal is made as to any given package all tension on the film is released and the film goes slack until the leading edge of the next succeeding package presses against the previously made seal. While the film in the experimental head would track as long as constant tension was maintained on the film, the film tended to slide down off of the folding head whenever the film was permitted to go slack. It will be noted that in Deans a constant tension on the film while the machine is in operation is provided by the constant movement of sealer bars 43 of end sealing mechanism 30 particularly in view of the fact that the sealing and severing step is not performed until 'just prior to the discharge thereof from the machine.' (Column 3, line 42). It was not until many months after this unsuccessful experiment that Mr. Shanklin conceived the present invention where prefolded film is advanced along a horizontal path to a film inverting head."

Thereafter, on June 18, 1971, a patent showing the Shank-

lin apparatus (but not the method) was allowed. The claims of the patent are recited in an appendix to this opinion.

The Shanklin machine was introduced in April 1969. In the fall of 1965 Weldotron introduced an automatic L-sealing packaging machine, based on Zelnick patent No. 3,429,-100. This machine fed articles at right angles onto a straight film flow. Weldotron built its first in-line L-sealer in 1970 and in the spring of 1971 introduced its Model 5872 in-line L-sealer, which is the machine at issue here and substantially the same as the Shanklin machine. Weldotron asserts that the Shanklin patent is invalid but does not contest infringement otherwise.[2]

On November 25, 1969, about seven months after the filing for the Shanklin patent, and after Weldotron's vice-president of engineering Seymour Zelnick had seen the Shanklin machine, Weldotron filed an application for a patent showing a large in-line L-sealer, with a u-shaped inverting mechanism almost identical to the Shanklin machine. A patent was later issued as Zelnick patent No. 3,619,970, which has been disclaimed by Weldotron since the trial of this case. That Weldotron's claims before the Patent Office were inconsistent with its present posture on the Shanklin patent is a factor to be considered; still, the prosecution of the Zelnick patent did not estop Weldotron from denying in this suit the validity of the Shanklin patent. *See Paramount Corp. Tri-Ergon Corp.*, 294 U.S. 464, 476-77 (1935).

After a trial the District Court for the District of Massachusetts, sitting without a jury, held that the Shanklin patent was invalid on the grounds of obviousness within the meaning of 35 U.S.C. § 103,[3] and also on the grounds of anticipation by prior art within the meaning of 35 U.S.C.

[2] In its post-trial memorandum, defendant withdrew its defense of non-infringement, so long as the Shanklin patent claims were not limited to the precise sealing mechanism of the patent. The claims have not been limited in such a manner.

§ 102.[4] The court made several particular findings: claim one of the patent was obvious because of disclosures in a prior art in-line packaging machine (Kleer-Vu) and prior art L-sealer (Zelnick patent No. 3,429,100), and because of several contemporaneous drawings and inventions; claim one was anticipated by the Runo patent which shows an in-line packaging machine using prefolded film and a "forming die" that inverts the film; and claims two through seven were anticipated by the Runo patent and the modified machine built on the basis of that patent. Apart from the question of validity, the court held that the Shanklin patent was in any event unenforceable because Shanklin used its patent to make illegal tie-in sales. *See* 35 U.S.C. § 282. The Court stated that Shanklin, as a matter of company policy, had refused to sell the patented Model A2 in-line

[3] Section 103 provides,

"A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made."

[4] Section 102 provides in pertinent part,

"A person shall be entitled to a patent unless—

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or . . .

(d) the invention was first patented or caused to be patented by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application filed more than twelve months before the filing of the application in the United States, or

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the inventions thereof by the applicant for patent. . . ."

automatic L-sealer (more accurately, a conversion kit consisting of the inverting head unit of the patented machine) to anyone who did not have a standard L-sealer supplied by Shanklin.

Preliminarily, we hold that the district court did not err in admitting and accepting as credible the testimony of three witnesses, William Runo, James Davis, and Seymour Zelnick.

Shanklin contends that the district court erred in admitting the untimely testimony of Runo, one of the joint inventors of a prior art patent, to establish prior invention of a modified machine based on the patent. Contrary to the 30-day notice requirement of 35 U.S.C. § 282,[5] defendant did not notify Shanklin that Runo would testify until six days before the trial began, and even then the notice did not mention the modified Runo machine. (Notice of the Runo patent itself was timely.) However, section 282 provides that in the absence of adequate notice, proof may be made at trial "on such terms as the court requires." The district court asked for and received briefs from both sides and devoted several pages of its opinion to the matter. 387 F. Supp. at 347-49. It decided that there was no actual surprise or prejudice to Shanklin, and no intentional deception by defendant, pointing out that prior to trial Shanklin

[5] Section 282 provides in pertinent part,

"In actions involving the validity or infringement of a patent the party asserting invalidity or noninfringement shall give notice in the pleadings or otherwise in writing to the adverse party at least thirty days before the trial, of the country, number, date, and the name of the patentee of any patent, the title, date, and page numbers of any publication to be relied upon as anticipation of the patent in suit or except in actions in the United States Court of Claims, as showing the state of the art, and the name and address of any person who may be relied upon as the prior inventor or as having prior knowledge of or as having previously used or offered for sale the invention of the patent in suit. In the absence of such notice proof of the said matters may not be made at the trial except on such terms as the court requires."

had some forewarning of the testimony as well as a 12-day recess between defense's resting and rebuttal. Shanklin, the court felt, had adequate opportunity to prepare and present its position. The court observed that Shanklin did not request a continuance after Runo had testified. We are of the opinion that in admitting the testimony about the prior art Runo machine, the court did not abuse its discretion under the statute.[6] *See, e.g., Dale Electronics, Inc.* v. *R.C.L. Electronics, Inc.*, 488 F.2d 382, 388 n. 11 (1st Cir. 1973); *Sutter Products Co.* v. *Pettibone Mulliken Corp.*, 428 F.2d 639, 641-42 (7th Cir. 1970), and cases cited therein.

Shanklin also argues that because Runo was the inventor, his uncorroborated testimony could not be used to establish prior invention of the machine as built.[7] This contention is without merit. Runo was an independent witness without an interest in this suit; there was no requirement of corroboration. Moreover, when defendant tendered a drawing of the machine, Shanklin objected and the additional evidence was excluded on the ground that it was unnecessary.

Shanklin argues that the district court erred in accepting the testimony of James Davis, a patent lawyer with no experience in the packaging field, as the opinion of an expert. Davis provided a written analysis of the validity of the Shanklin claims when compared with prior and contemporaneous inventions introduced by defendant. The court ruled that Davis was qualified to assist the court in resolving highly technical matters, on the basis of his background as Patent Office examiner, associate in a patent law firm, and trial judge for the Court of Claims. Much of

[6] Shanklin cites in his behalf language from *Turini* v. *Allens Mfg. Co.*, 198 F.2d 491 (1st Cir. 1952), *cert. denied*, 345 U.S. 917 (1953). That decision, however, construed an earlier statute in the context of a witness' surprise testimony of his prior secret practice. The case seems to us not to control the situation here.

[7] Runo, referring to a log book, testified that the modifications of his patented machine were made on July 31, 1967, and in tests the next day the machine operated successfully.

Davis' experience involved mechanical cases, and we think the district court did not exceed its discretion in deceiving his opinions on technical matters. *See, e.g., M. B. Skinner Co.* v. *Continental Industries, Inc.*, 346 F.2d 170, 173 (10th Cir. 1965). Nor can we say that the court erred in finding his testimony credible merely because the witness mistakenly designated some documents as legally effective prior art. This inaccuracy was not of such a nature as to preclude giving general credit to the testimony. *See, e.g., Nyyssonen* v. *Bendix Corp.*, 342 F.2d 531, 536-37 (1st Cir. 1965). Similarly, we cannot say that the district court erred in accepting the testimony of Zelnick as credible simply because such testimony was self-serving and at variance with the Weldotron claims concerning Zelnick patent No. 3,619,970.

On the merits, we consider first the court's ruling that the Shanklin patent was anticipated by the Runo patent under 35 U.S.C. § 102. To anticipate under section 102, a prior art reference must disclose all the elements of the claimed invention of their equivalents functioning in essentially the same way. *See, e.g., International Glass Co.* v. *United States*, 408 F.2d 395, 405-06 (Ct. Cl. 1969). *See also CBS* v. *Sylvania Electric Products, Inc.*, 415 F.2d 719, 725 (1st Cir. 1969), *cert. denied*, 396 U.S. 1061 (1970); *Colourpicture Publishers, Inc.* v. *Mike Roberts Color Pictures*, 394 F.2d 431 (1st Cir. 1968). In terms of the packaging industry's labels, the Runo patent shows a "form-fill-sealer," the Shanklin patent an "L-sealer." The parties have gone to considerable lengths to either equate or distinguish these types. Both are classified in the same category and subcategory at the Patent Office. Defendant asserts that L-sealers are a variety of form-fill sealer, the only difference being that L-sealers have an L-shaped seal bar that makes the side and cross seals of the package simultaneously after the article has been inserted, whereas

other form-fill sealers make the side (or cross) seal first and then fill the three-sided pouch thus formed before making the final seal to complete the package. On the other hand, Shanklin contends that in form-fill sealers the film must be under continuous tension when drawn over the forming head to make a conforming pouch, and the longitudinal seal must be formed to capture edges before tension is released—only then can the transverse seal be made without loss of tracking on the forming head, and thus the need exists to isolate the tension from the film in the seal area to avoid making a weak seal. Shanklin states that in L-sealers the tension in the feed process as well as in the seal process must be low.

Without attempting to pass judgment in such categorical terms, we find too many structural and operational differences for the Runo patent to be said to have anticipated the Shanklin patent within the meaning of section 102. Thus we think the court erred in its ruling of invalidity under section 102, and turn now to its ruling that claim one of the patent was obvious under section 103. (In our discussion of this point, we develop more fully some of the considerations relevant to our interpretation under section 102.)

To be valid under section 103, a patent must be nonobvious to one of ordinary skill in the art at the time it is made. Note 3 *supra*. As the Supreme Court has stated, resolution of this issue requires factual inquiry into the scope and content of prior art, the differences between the prior art and the claims in issue, and the level of ordinary skill in the particular art—as well as possible consideration of such secondary factors as commercial success, long felt but unsolved needs, and failure of others. *Graham* v. *John Deere Co.*, 383 U.S. 1, 17-18 (1966). Within this context the determination of nonobviousness is a question of fact, *see, e.g., Koppers Co.* v. *Foster Grant Co.*, 396 F.2d 370 (1st Cir. 1968), and this court may not set aside the district

court's findings unless they are clearly erroneous, Fed. R. Civ. P. 52(a).

In making its determinations, the district court must presume the patent to be valid and place the burden of establishing invalidity on the party asserting it. 35 U.S.C. § 282. Shanklin, contending that the district court did not accord the presumption of validity here, points out that the only prior art specified by the court in finding claim one to be obvious were two machines derived from prior art considered by the Patent Office—the commercial version of the Kleer-Vu machine, which is a successor to the Deans in-line machine, and the Zelnick disclosures, which were the state of the art in right-angle L-sealers at the time. The flaw in this contention is that it overlooks the significance of the Runo patent, which was not disclosed to the Patent Office examiner in the Shanklin application.

While the district court did not explicitly[8] cite the Runo patent as a basis for invalidity except on the question of anticipation, the court's consideration of the Runo patent on the obviousness issue is implicit from its findings that all claims were anticipated by Runo. If a claimed invention is anticipated by prior art, it must also be obvious. *See, e.g., Popeil Bros.* v. *Schick Electric, Inc.*, 494 F.2d 162, 167 (7th Cir. 1974). The defense of obviousness is less strict than that of anticipation, which requires substantial identity of all elements between a single prior art reference and the claimed invention. Prior art which is insufficiently simila to support anticipation—such as where all elements or

[8] However, the district court did "find as factually correct [Zelnick's] opinion that 'the combination that forms the patent in suit' was not novel in 1968, but, on the contrary, was 'certainly obvious to quite a few people independently.' " The court also accepted as credible defendant's expert Davis, who presented an analysis and expert opinion based in part on the Runo patent that all the Shanklin claims were obvious and most were anticipated. *See generally Edward Valves, Inc.* v. *Cameron Iron Works, Inc.*, 289 F.2d 355, 356 (5th Cir. 1961).

their equivalents are not found in one patent but may be found in different prior patents in the same art—may still render the claimed patent obvious in combining various elements. *See, e.g., Hutchinson Mfg. Co.* v. *Mayrath,* 192 F.2d 110 (10th Cir. 1951), *cert. denied,* 343 U.S. 914 (1952). We think that is the situation here.

Although not issued at the time of the claimed Shanklin invention in May 1968, the Runo patent is nevertheless prior art because of its earlier filing date of March 8, 1967, *see Hazeltine Research* v. *Brenner,* 382 U.S. 252 (1965), and the hypothetical person having "ordinary skill in the at" is imputed to have knowledge of it under section 103, *see David & David, Inc.* v. *Myerson,* 388 F.2d 292, 294 (2d Cir. 1968). The Runo patent, briefly, shows a vertical in-line packaging machine. The film, originally flat, is folded prior to entering a former die, or inverting head, and in the process turning 90° into the product line and opening to receive products when it becomes formed into a tubular bag. The Runo patent shows jaws drawing the film down over the folder and through the inverting head and forming die, but in the modified machine this is accomplished by the weight of the product supply forcing downward. The Runo patent makes the longitudinal seal intermittently, out of time with the transverse seal, and the modified machine makes the longitudinal seal for the next seal at the same time as the transverse seal for the previous pouch. Clamping jaws isolate and protect the fresh transverse seals from tension.

The Patent Office examiner for the Shanklin application, ignorant of the Runo patent, allowed the Shanklin patent after being shown how use of flat film through a folding head as in the Deans machine had failed, and how Mr. Shanklin later conceived the idea of using folded film and an inverting head. The entire record of this case is replete with statements that the crux of the Shanklin patent is the use

of a u-bar to invert and redirect pre-folded film in an in-line packaging path.[9] Mr. Shanklin stated that the teaching of flat-film form-fill sealers had actually led him away from conceiving of the ultimately successful combination for use in an in-line L-sealer. Yet the Runo patent showed flat film being folded before reaching an inverting head that redirects the film into the article path,[10] and knowledge of this is deemed to exist at the time of the Shanklin application. We think this is highly pertinent evidence which may overcome the presumption of validity of the patent.[11] *See, e.g., The Triax Co.* v. *Hartman Metal Fabricators, Inc.*, 479 F.2d 951, 954 (2d Cir. 1973).

This is not to say that Runo's prior use of folded film and an inverting head establishes, by itself, that Shanklin's

[9] Frank James, a distributor for Shanklin, hedged on this point. The court found his testimony to be "biased and unreliable."

[10] We do not think the Runo folding structure 34 and inverting forming head 50 must be viewed as an integral structure. Mr. Runo testified that the location of the folding member next to the forming member was only a matter of convenience in terms of one-piece construction of parts. On the other hand, there is no device to isolate the tension caused by the film dragging over the folder, and so tension exists over the head and the film must be pulled. In that sense the Runo machine is distinct from the version of the Shanklin patent which employs flat film that is folded on route to the inverting head—a power unwind isolates the tension and thus allows the film to be "directed," not "drawn," into the inverting head. Defendant calls this a distinction without a difference and points to the Runo machine's film reservoir, which reduces back tension. But the Runo counterweight does not eliminate tension over the head and thus does not disclose the essential property of the tracking device which made it useful.

[11] After Zelnick's testimony and before Runo's testimony, the district court told counsel, "I have serious doubt whether there is any invention, right now," and urged defendant to expedite its case. On the basis of this remark, Shanklin asserts that the court improperly shifted the burden of proof to Shanklin at time when the burden had not been overcome. While remarks of this character understandably tend to an impression of prejudgment, we do not take them in isolation. Having reviewed the record, we are not persuaded that the court inadequately considered the evidence presented to support the patent's validity or that the court failed to give due deference to the patent's presumption of validity.

mode of using this combination for an in-line L-sealer would have been obvious to one of ordinary skill in the art. In the Shanklin machine relatively tension-free delivery of folded film to the head is necessary for tracking, article enclosure and advancement, and a tensionless seal. The Runo machine, vertically oriented to package heavy amounts of loose material in pouches formed around a head, requires tension over the forming head—or at least so it seems from the evidence in the record. *See* note 10 *supra*. These dissimilarities indicate the need for further inquiry into whether one having ordinary skill in the art could be expected to evolve the Shanklin machine from the Runo patent and other prior art references.

The court relied in part on evidence offered to show that others of ordinary skill in the art also approached the matter of in-line packaging machines much as Shanklin had done about the same time.[12] We think such evidence was admissible and probative.[13] Though not prior art, 35 U.S.C.

[12] The court relied on three conceptions which do not constitute prior art. The German OLS application shows a large in-line start-stop machine, with folded film on a roll outside the article path. At the article path the film turns 90° through a large, u-shaped inverting hood, which opens and turns the film inside out. Articles are advanced to the seal area by rollers.

John Davies, product development manager at the Oliver Company, which purchased the Deans patent, produced at trial two notebook pages containing a 1963 drawing of his proposed automatic in-line L-sealer, which was to use folded paper over a spreader folder.

The Kleer-Vu drawing of January 25, 1965, showing a product path, folded film roll, and right angle-folder, corroborated the testimony of Deans and co-inventor Pace that they had originally contemplated using folded rather than flat film in the machine which had derived from the Deans patent. The inventors thought folded film would make easier the right-angle fold to feed material for packaging, but they found that folded film was more expensive and decided to use flat film in a u-shaped tube instead.

[13] Shanklin asserts that the court relied on this evidence as prior art. But we can find nothing in the record to support this contention except, perhaps, the fact that the court included this evidence as well as prior art in a list of the bases for the finding of obvious-

§ 102(g), these contemporaneous suggestions and concept drawings provide cumulative indicia as to what constituted ordinary skill in the art and thus alleviate somewhat the problem of evaluation by hindsight. *See, e.g., International Glass Co., supra,* 408 F.2d at 405; *Felburn* v. *New York Central RR,* 350 F.2d 416, 424-26 (6th Cir. 1965); *Reeves Bros.* v. *United States Laminating Corp.,* 282 F.Supp. 118, 140 (E.D.N.Y. 1968), *aff'd,* 417 F.2d 869, 872 (2d Cir. 1969). From these, as part of the record as a whole, the court could reasonably find that others had been able to fashion tracking devices similar to Shanklin's including ones with prefolded film for use in in-line L-sealers (unlike the Runo patent).

We do not think Shanklin derives much support from the record on such secondary factors as its patent's commercial success. There is evidence of a significant demand for the in-line L-sealer in New England after Shanklin introduced the first one, and Weldotron followed suit. However, Weldotron's argument that it had no incentive to compete with its own right-angle L-sealers until the Shanklin in-line version appeared is plausible. Weldotron's sales of automatic L-sealer have shifted to a point where future sales are expected to split evenly between in-line and right-angle machines; Shanklin has essentially been selling only its patented machine. There is nothing of strong weight in the record as to the relative general attractiveness of the two versions in terms of sales, speed, efficiency, or layout suitability.

There is no showing of "long-felt but unresolved need." Mr. Shanklin testified that he was asked to build an L-

ness. But even in this list the court referred to Weldotron's "Prior Art Book" as "so-called." And earlier in its decision the court accurately referrd to prior art being relied on by defendant. Moreover, at trial Shanklin's counsel specifically called attention to what in Weldotron's Prior Art Book was prior art and what was not, and the court carefully noted the distinctions made.

sealer, and he preferred to build an in-line model. When he first failed, he held the project in abeyance for a year before returning to it and conceiving of the patented mechanism right away.

No failures are established in the record except that of Mr. Shanklin himself. Shanklin alleges that Weldotron failed, but it is not altogether clear that Weldotron's horizontal centerfolder, which was offered for sale as a film-folding machine in 1965 with little success, reflected an aborted attempt to produce an in-line L-sealer. The fact that it was once tested with an L-sealer and produced high drag establishes little. In this regard we note that evidence was introduced and corroborated that Weldotron project engineer Budzyn suggested in a memorandum of July 15, 1965, that the centerfolder could be opened up in a way to permit in-line insertion of packages during the folding of film. His suggestion was of an in-line automatic L-sealer with a roll of folded film turned inside out through an inverting "tray." Shanklin argues that this memorandum shows failure, because the idea was abandoned as impractical or unworkable. But the memo notation does not indicate this construction—rather, it says, "This arrangement may be favorable for a high rate of automatic feed."

On this record we cannot say that the district court was clearly erroneous in concluding that claim one of the patent was obvious under section 103.

Although the district court explicitly stated that the patent was invalid for obviousness, it did not make specific findings that claims two through seven were obvious. The court did find these claims to be anticipated by the Runo patent and machine. For the reasons stated above as to the necessary bearing of the Runo patent on the finding that claim one was obvious, we think there is implicit in the court's rulings a finding of obviousness on claims two through seven, and we cannot say that the court overlooked

these claims. *See Nashua Corp.* v. *FCA,* 431 F.2d 220, 225 n. 6 (1st Cir. 1970). Moreover, given the finding of obviousness on claim one, we think the court could reach no other conclusion on the other claims on this record.[14] It is quite clear from the history of Shanklin's application to the Patent Office that the examiner finally allowed the patent on the basis of Shanklin's claim one, based on the folded film and inverting head mechanism. *See Graham* v. *John Deere So., supra,* 383 U.S. at 32. Claims two, four, and six, insofar as they differ from claim one, *see* appendix, are identical or substantially equivalent to elements in the Runo patent and machine, and clearly obvious. Claim seven is the in-line equivalent of the prior art right-angle automatic L-sealer conveyor mechanism, by which the pusher arm advances the articles against the end seal in a start-stop motion. Claim five, which specifies the path of package flow and a support means through the film inverting head, has no equivalent in the vertically oriented Runo machine as to its latter aspect, but we agree with defendant's witness Davis, credited by the court, that the support means would be obvious to use in a horizontally oriented machine. Only claim three, providing for the inverting head to be mounted so as to be adjustable for packages of varying width, gives us reason to pause. Prior art in-line machines, such as Deans's, could make width adjustments only with considerable difficulty and remounting. However, as Mr. Shanklin attested to, the L-sealer is versatile and easily adjustable. We think the claimed adjustment is not a significant feature in the patent, given that claim one is found

[14] In *Colourpicture Publishers* v. *Mike Roberts Color Productions,* 394 F.2d 431 (1st Cir. 1968), the district court had granted summary judgment without making the requisite inquiry as to obviousness, and was reversed. Here, by contrast, there was a full trial and extensive briefing of the court. In view of the general holdings and entire record, we cannot assume that the court overlooked the claims, and we do not remand.

to be obvious, and we think it would be a simple expedient. We do not pass on whether the adjusting mechanism of the Moore patent, which shows an interleaving tissue-stacking machine, belongs to an art sufficiently analogous to bear on this question.

Since there was evidence to support the finding that all claims of the patent were invalid for obviousness, we do not rule on the district court's holding that the Shanklin patent is unenforceable because of patent abuses in the form of illegal tie-in practices.

Affirmed.

APPENDIX

Shanklin Patent Claims

1. In an apparatus for wrapping packages in a thermoplastic film

having a film supply means wherein thermoplastic film is supplied as an elongated length folded back upon itself along a longitudinal axis to form a top and a bottom web portion overlying one another in close juxtaposition one to the other and is directed into the apparatus along a horizontal path with the folded edge on one side and the free edges on the other, and

a film sealing means having at least an intermittently operated transverse sealing means for sealing said folded film transversely between said folded edge and said free edges

a film inverting head located between said film supply means and said film sealing means in the path of package flow through said apparatus in such a manner that the fold line in said folded film may be passed through the center line of the inverting head, and that the film is redirected and turned inside out in passing over and through said inverting head, said inverting head pro-

viding an opening into which a package may be inserted between the connected webs of said film

said inverting head comprising a pair of spaced arms operably associated at one end, said arms intersecting said path of package flow with one arm extending above and the other extending below said path of package flow and being directed at an angle both to the path of package flow and to the path of film travel from said supply means to said head with the operably associated end of said head substantially aligned with the path of the folded edge of said film

whereby after a first transverse seal has been made in said length of film, the passage of a package along said path of package flow through said inverting head and across said transverse sealing means draws enough film from said film supply means over and through said inverting head to surround said package.

2. [Statements identical to claim 1 omitted] the path of said film travel to said head being substantially at right angles to the path of said package flow, and

the said head being set at an angle of about 45° to both said path of package flow and said path of film travel

3. [Same as claim 2] the film inverting head being mounted to move in a direction normal to said path of package flow whereby adjustment for packages of varying width may be accomplished merely by moving said film inverting head

4. [Same as claim 1] said inverting head comprising a pair of spaced arms operably associated at one end and oriented substantially parallel one above the other

5. [Same as claim 1] the path of package flow including a package support means which extends through said film inverting head

6. [Same as claim 5] wherein automatic means are provided for feeding packages one by one onto and across

said support means through said inverting head across said transverse sealing means

7. [Same as claim 1] a film sealing means having an intermittently operated sealing means for sealing said folded film both transversely between said folded edge and said free edges and logitudinally along said free edges

. . . .

APPENDIX C

UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

Civil Action 72-410-C

SHANKLIN CORPORATION

v.

SPRINGFIELD PHOTO MOUNT COMPANY

OPINION

January 6, 1975

CAFFREY, *Ch. J.*

This is a civil action brought pursuant to 35 U.S.C.A. 281 for alleged infringement of United States Patent No. 3,583,888. Jurisdiction is based on 28 U.S.C.A. 1338(a) and 28 U.S.C.A. 1400(b). Plaintiff Shanklin Corporation and defendant Springfield Photo Mount Company are Massachusetts corporations.

The patent in suit was issued on June 8, 1971, on the basis of an application filed on April 10, 1969 by Frank G. Shanklin, plaintiff's assignee. The allegedly infringing device is a machine called Weldotron Model 5872 Automatic L-Bar Package Forming System, which is manufactured by Weldotron Corporation of Piscataway, New Jersey. Although not a formal party to this case Weldotron is the real party in interest and it has entered into a letter of agreement dated February 29, 1972 under the terms of which it has agreed to defend this suit "at its own expense," and to "pay all damages and costs, and be responsible for any other liability assessed by any judgment rendered in this suit."

In its answer, defendant Springfield admits that it has used the Weldotron machines in its commercial operation. The case presents the usual issues of validity and infringement raised by both plaintiff's complaint and by defendant's counterclaim for declaratory relief. Defendant also charges plaintiff with patent abuse. The issue of defendant's liability for any monetary damages was reserved until after a decision on the issues of validity and infringement.

After a four-day trial, I find and rule as follows:

1. *With Reference to the Issue of Validity*

The general subject matter of this litigation is the field of packaging machines. The machines involved are in a class of packaging machines generally known in the trade as L-type Sealers or, alternatively, as L-Sealers. More particularly, the machine in question is a packaging machine which uses clear plastic wrapping film positioned on a roll, which film is drawn from the supply roll as a continuous source of wrapping material and formed by the machine into a shape which will receive the article or articles to be wrapped in the plastic film. The articles to be packaged are fed into the film manually or by means of a mechanical pusher and the film is then sealed about or around the articles to make a completed package. The articles to be wrapped follow a straight line path to and through the machine. The roll of wrapping film is located out of the path of the moving articles and the film is drawn from the roll into the path of the article where it makes a 90° turn through the use of a forming head or inverting head. The wrapping film while on the roll, and thereafter, is in a folded condition, being folded in two along its center line before it makes the 90° turn through the head. As the folded film turns the corner in the head into the article path, it is opened in order to be able to receive the article passing along the article path. The article to be wrapped passes between the open sides of the film and against a previously made transverse seal to advance the film with the article into a sealing situation.

At this point, a transverse seal is formed behind the article as well as a longitudinal seal alongside the article. The film is then severed transversely along the middle of the transverse seal being formed, in such a manner as to separate the completed package from the ribbon of film which has come off the roll, and in such a manner as to effectively separate the seal into two parts, one providing a back seal for the package which has just been wrapped and the other providing a forward seal for the next article in line to be wrapped on the machine.

At the trial a considerable quantity of prior art was introduced into evidence in support of defendant's contention that the Shanklin patent lacks invention over the prior art and in support of the claimed obviousness. Defendant's principal reliance is placed on the Siegel, et al patent No. 3,047,991 which is the patent for Weldotron's manual L-Sealer; Zelnick patent No. 3,429,100, the patent for Weldotron's automatic L-Sealer packaging machine; the Suzuki patent No. 3,494,096 for a folding head; and the Runo, et al patent No. 3,538,676 for intermittent motion in-line packaging machines. On the issue of obviousness defendant also relies on the disclosures involved in the exhibition and offering for sale, in 1965, of a packaging machine manufactured by Kleer-Vu Industries, which machine was the subject matter of the Dean's, et al patent No. 3,420,035.

One preliminary matter must be disposed of before the evidence of either obviousness or lack of inventiveness is analyzed and that matter is the plaintiff's objection to the Court considering the testimony given by William R. Runo, the inventor of patent No. 3,538,676.

When Mr. Runo was called as a witness by defendant on March 27, the plaintiff objected to the Court receiving his testimony on the grounds that defendant had failed to afford plaintiff the full 30-day notice prior to trial required

by 35 U.S.C.A. 282. The Court then took Mr. Runo's testimony as an offer of proof. At the close of all evidence on April 9 defendant moved to have the testimony of Mr. Runo received as evidence. The Court advised counsel that it would reserve judgment on the motion to accept Mr. Runo's testimony until after counsel had filed their requests for findings of fact, rulings of law, as well as memoranda of law. A review of the file indicates that although scheduled for trial on March 11, 1974, actual trial of this case did not begin until March 26. On February 11 defendant filed a motion to continue the trial for "about one month." On February 12 plaintiff filed a memorandum in opposition to the allowance of this continuance sought by defendant. On February 14 defendant's motion for a continuance was denied. On March 20 Mr. Runo agreed to become a witness. On the same day, counsel for defendant telephonically notified counsel for plaintiff that Mr. Runo had agreed to testify and also served written notice of that fact on counsel for plaintiff. Had not plaintiff's objection to the continuance prevailed, this case would have been scheduled for trial on Monday, April 15, or Tuesday, April 16, by which time plaintiff would have had 26 days' notice of the fact that Mr. Runo agreed to testify for the defendant, and, if the delayed trial had spread over the same number of calendar days as were used up by the trial which took place, from March 26 to April 9 (15 days), a trial which began on April 15 would not have concluded until April 29, in which event more than 30 days would have elapsed from March 20, the date on which notice of Mr. Runo's testimony was given.

Counsel for the defendant has represented to the Court, without challenge, that on March 25 at the calendar call, counsel for plaintiff made no objection on the ground of untimeliness to the announcement that defendant contemplated using Mr. Runo as a witness. Counsel further

represented that in reliance on this lack of objection he did not advise the Court at the calendar call of the shortness of the notice given, and counsel for defendant further represented that had he been advised of any objection to the Runo testimony he would have used the opportunity available at the calendar call either to request that the Court rule on plaintiff's objection or to request a continuance of the trial until after the expiration of 30 days from March 20.

It also should be noted in reference to this objection that notice of the fact that defendant planned to rely on Mr. Runo's patent No. 3,538,676 was given to plaintiff in 1972, more than two years prior to the trial and that Runo's testimony was in line with the disclosures of his patent.

It is settled law that the purpose of § 282 is to prevent parties from being surprised at the trial by evidence of a nature which they could not be presumed to know about or be prepared to meet. In considering whether or not to admit evidence of a witness if the required 30-day notice has not been given, the Court should consider (1) whether or not defendant has given any written notice prior to the trial, which was done herein; (2) whether plaintiff was actually surprised by the evidence, I find that the only surprise herein was that visited on defendant by counsel for plaintiff; (3) whether under the circumstances, plaintiff had adequate opportunity to present its case. I find that due to the 12-day recess between the defense resting and the rebuttal, the plaintiff had adequate opportunity to present its case and, in fact, presented substantially more evidence on rebuttal than it did in the presentation of its case; (4) whether the plaintiff has actually shown prejudice. I find no showing of prejudice herein; (5) whether plaintiff made a request for a continuance at the time the evidence was elicited. No such request appears in the record herein; (6) whether there has been any intentional deception on the part of the defendant. I find no intentional deception or other misconduct on the part of the defendant or its counsel.

On the basis of the above, as well as the fact that during the pretrial discovery of this case from 1972 to the trial date, numerous references to the Runo patent were made in the course of depositions and interrogatories, I rule that the testimony of Mr. Runo is fully admissible despite the non-compliance with § 282. I further rule that exclusion of this relevant testimony would only serve the purpose of producing an adjudication of this controversy without the benefit of relevant and material evidence proffered by counsel. Accordingly, I accept the testimony of Mr. Runo as evidence in this case.

The patent in suit, being for an in-line packaging machine, describes a machine on which articles to be wrapped or packaged are placed. The articles then pass along or through the machine in a straight line. The packaging film is located on a roll outside the path along which the articles move. The film is drawn into the path of the article flow by the use of a forming head which redirects the direction in which the film moves 90°, and the head also opens the film to receive the articles which are placed on the machine to be packaged. The film used in plaintiff's machine is folded longitudinally along its center line before it arrives at the forming head. The forming head on the Shanklin machine turns the film inside out while redirecting its path. Thus, the outside surface of the folded film becomes the inside surface adjacent to the articles. For this reason, plaintiff sometimes denomiates the head as an "inverting" head, although in his early entries in his notebook, dated May 27, 1968, he referred to it as a folding head. The head has also been characterized by

witnesses called by plaintiff at the trial as a "forming mechanism" and a "forming structure."

It is important to note that plaintiff's device is based on the use of folded film and the passing of folded film, rather than flat film, through the forming head or device. This fact gives some relevance to a prior statement made by plaintiff to the patent office: "L-Sealers have used center folded film since they were first invented." This statement is contained in plaintiff's amended application, filed with the Patent Office in August of 1970.

The Shanklin patent file history is in evidence as defendant's Exhibit D. It reveals that the examiner originally rejected the application and all of its claims on the basis of Dean's patent No. 3,420,035. The Dean patent revealed an in-line continuous motion machine, the rights to which were acquired by Oliver Machinery Company which marketed the machine as the "Oliver-906." The Dean machine used a roll of flat film positioned outside the article path and a folding head which turned the film 90° into the article path while it was being folded and opened in order to receive the articles which were passing along the path. In response to this rejection an amended application was filed by Mr. Shanklin, making the point that the patent in suit was distinguishable from the device shown in Dean's in that it uses prefolded film which is turned inside out around the inverting head, whereas Dean's uses either a folding mechanism or a forming head. Thereafter, the examiner issued a second office action, designated "final," again rejecting all of the claims "for the reason applied against them in the first office action."

Thereafter, plaintiff and his attorney had an interview with the examiner, in the course of which reconsideration of the "final" decision was requested and, eventually, the patent was allowed.

A review of the exhibits herein satisfies me that the instant patent is invalid, on the grounds of obviousness, within the meaning of 35 U.S.C.A. § 103, and also on the grounds that it has been anticipated by the prior art, within the meaning of 35 U.S.C.A. § 102. More particularly, I find with reference to Claim 1 of the instant patent, having to do with an apparatus for wrapping packages in a thermoplastic film, that it is obvious because of the disclosures contained in the commercial version of the Kleer-Vu machine (Tab 5-c to the "Prior Art Book," so called), (Defendant's Exh. C); because of the Davis drawing dated September 16, 1963 (Tab 6 to Defendant's Exhibit C); because of the Kleer-Vu drawing of January 27, 1965 (Tab 5-a to Defendant's Exhibit C); because of the Zelnick patent disclosures (Tab 2-a of Defendant's Exhibit C); and because of the German Ols patent disclosures (Tab 10 to Defendant's Exhibit C). I also rule that Claim 1 has been anticipated by the Runo patent (Tab 8 to Defendant's Exhibit C).

I find that Claims 2 through 7 of the Shanklin patent have been anticipated by the Runo patent (Tab 8 to Defendant's Exhibit C), and by the machine built on the basis of the Runo patent. In so finding, I accept as credible the testimony of the witness William R. Runo and the testimony of the witness James Davis. With reference to Mr. Davis, I specifically rule that his background as a United States Patent Office examiner, as an associate in a Washington, D.C. patent law firm, and his six years experience as a "trial judge" (commissioner) for the United States Court of Claims, qualifies him to express an opinion which is reliable and of assistance to the Court in resolving this highly technical matter. I also accept as credible the testimony of Seymour Zelnick, an experienced engineer who has been with the Weldotron Company for twenty years. I find as factually correct his opinion that

"the combination that forms the patent in suit" was not novel in 1968 but, on the contrary, was "certainly obvious to quite a few people independently." I do not credit the testimony of rebuttal witness Frank A. James, which I find to be biased and unreliable.

2. *With Reference to the Issue of Enforceability*

Defendant contends that quite apart from the issues of obviousness and anticipation by the prior art, plaintiff may not succeed herein because of patent abuse. Defendant alleges, in substance, that plaintiff used its patented inverting head in connection with alleged "tie in sales" in such a way as to disqualify plaintiff from enforcing the patent if the patent were valid. Plaintiff has refused, and still refuses, to sell its patented Model A2 in-line automatic L-Sealer to anyone who does not have a standard L-Sealer supplied by plaintiff. That this policy is being followed by plaintiff is established in the record by answer to interrogatory No. 14 (Defendant's Ex. K), and by the testimony on pages 56 and 58 of Mr. Shanklin's deposition (Defendant's Ex. L). This testimony is also supported by plaintiff's brochure on the A2 L-Sealer (Plaintiff's Ex. 8). I find that because of these tie in sales, plaintiff would not have standing to enforce this patent if, in fact, it were valid.

Finally, defendant moves for attorneys' fees herein, primarily on the basis of defendant's claim that plaintiff intentionally filed the instant case knowing the patent to be invalid. I rule that defendant has not substantiated its burden of proof with regard to establishing plaintiff's prior awareness of or actual knowledge of the invalidity of its patent. Accordingly, I deny defendant's motion for attorneys' fees.

Judgment in accordance with this opinion.

(s) ANDREW A. CAFFREY
ANDREW A. CAFFREY, *Ch. J.*

APPENDIX D

§ 102. Conditions for patentability; novelty and loss of right to patent

A person shall be entitled to a patent unless—

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or . . .

(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

§ 103. Conditions for patentability; non-obvious subject matter

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains . . . .

§ 104. Invention made abroad

In proceedings in the Patent Office and in the courts, an applicant for a patent, or a patentee, may not establish a date of invention by reference to knowledge or use thereof, or other activity with respect thereto, in a foreign country, except as provided in section 119 of this title . . . .